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INTEGRATED NETWORK SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

5 This application claims the benefit of U.S. Provisional Patent Application No. 60/140,284, filed on June 18, 1999.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

Not Applicable.

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FIELD OF THE INVENTION

The present invention relates generally to communication networks, and more particularly, to network protocols.

15 BACKGROUND OF THE INVENTION

Two known types of communication networks are private networks and public networks. Examples of private networks include communication networks owned or rented by road administration authorities, police, electricity companies, railway companies, and other institutions. These networks are dedicated to communications
20 for the institutions that own or rent them such that third parties cannot access them even if they are idle. Exemplary public networks include public telephone, cellular phone, and the Internet.

While private networks generally provide reliable communications, they have
25 certain concomitant disadvantages. One significant drawback to private networks, such as emergency networks, is cost since they are normally idle. Thus, the overall cost of the network is borne by relatively few users. In addition, many private networks are not as sustainable as desired. The communication networks for road authorities, police and electricity companies, for example, are desired to work under
30 unusual conditions, such as severe storms and earthquakes. However, private networks typically have fewer nodes, and therefore, fewer potential pathways from source to destination. A connection failure between nodes within the private network may significantly impact or prevent communication between first and second

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